VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims have been amended as follows:

1. (Amended) An ethylene (co) polymer (A1) being either an ethylene homopolymer or a copolymer of ethylene and an α-olefin of 4 to 20 carbon atoms, wherein

(i_{A1}) the ethylene (co)polymer contains methyl branches less than 0.1 in number per 1,000 carbon atoms measured by ^{13}C-NMR, and

(ii_{A1}) the ethylene (co)polymer has a ratio of Mw/Mn (Mw denotes the weight average molecular weight; Mn denotes the number average molecular weight) measured by gel permeation chromatography is not lower than 1.8 and lower than 4.5.

3. (Amended) The ethylene (co)polymer (A1) according to claim 1 or 2, wherein

(iv_{A1}) the intrinsic viscosity [([η] (dl/g))] [η] in dl/g and the density [(d (g/cm^3))] d in g/cm^3 satisfy the following [relation;] relation:

$d \geq 0.0003 \times [\eta]^2 - 0.0121 \times [\eta] + 0.9874$; in the case the intrinsic viscosity measured at 135°C in decalin is 0.3 to 1.5 dl/g.

4. (Amended) The ethylene (co)polymer (A1) according to [any one of the claims 1 to 3,] claim 1 or 2, wherein

(v_{A1}) the intrinsic viscosity [([η] (dl/g))] [η] in dl/g measured at 135°C in decalin and the melt flow rate [(MFR (g/10 minutes))] MFR in g/10 minutes measured under 2.16 kg load at 190°C satisfy the following [relations;] relations:

[η] > 1.85 x $MFR^{-0.192}$ [in the case of] when MFR < 1, and

[η] > 1.85 x $MFR^{-0.213}$ [in the case of] when MFR ≥ 1.

5. (Amended) The ethylene (co)polymer (A1) according to [any one of claims 1 to 4,] claim 1 or 2, wherein

(vi_{A1}) [the components eluded at 105°C or higher in a heating elution separation test, said components are not more than 5% by weight or lower in the case] when the comonomer content is 1.5 mole% or higher, an amount of components eluted at 105°C or higher in a heating elution separation test is not more than 5% by weight; and when the comonomer content is less than 1.5 mole%, an amount of [the] components eluted at 106°C or higher in a heating elution separation test are not more than 8% by weight [or lower in the case when the comonomer content is less than 1.5 mole%].

6. (Amended) The ethylene (co)polymer (A1) according to [any one of the claims 1 to 5,] claim 1 or 2, wherein

(vii_{A1}) the components are precipitated [in] at 15% by weight or lower [in the case] when said ethylene (co)polymer is dissolved in p-xylene at 130°C, [and] then cooled to 75°C, and finally [to

precipitate] the dissolved components are precipitated in a poor solvent.

7. (Amended) The ethylene (co)polymer (A1) according to [any one of the claims 1 to 6,] claim 1 or 2, wherein

(viii$_{A1}$) the % by weight W of the decane-soluble components [(W (% by weight))] at 23°C and the density [(d (g/cm^3))] d in g/cm^3 satisfy the following [relations;] relations:

$W < 80 \times \exp(-100 \times (d - 0.88)) + 0.1$ [in the case] when MFR ≤ 10 g/10 minutes; and

$W < 80 \times (MFR - 9)^{0.26} \times \exp(-100 \times (d - 0.88)) + 0.1$ [in the case] when MFR > 10 g/10 minutes.

8. (Amended) The ethylene (co)polymer (A1) according to [any one of the claims 1 to 7,] claim 1 or 2, wherein

(ix$_{A1}$) the α-olefin content [(K (mole%))] K in mole% and the melting point [(Tm (°C))] Tm in °C of the highest peak of an endothermic curve measured by a differential scanning calorimeter satisfy the following [relations;] relations:

$Tm \leq 135.0 - 10.0K$ in the case K = 0.1 to 1.5 mole%;

$Tm \leq 121.9 - 1.3K$ in the case K = 1.5 to 5.5 mole%; and

$Tm \leq 139.7 - 4.5K$ in the case K = 5.5 to 20 mole%.

9. (Amended) The ethylene (co)polymer (A1) according to [any one of the claims 1 to 8,] claim 1 or 2, wherein

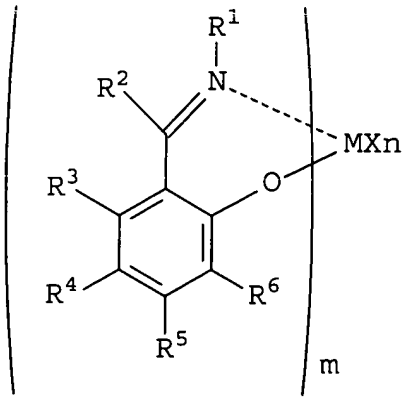
(x_{A1}) the number of branches having a length equivalent to that of hexyl or longer measured by ^{13}C-NMR is less than 0.1 per 1,000 of carbon atoms.

10. (Amended) The ethylene (co)polymer (A1) according to [any one of the claims 1 to 9,] claim 1 or 2, wherein the ethylene (co)polymer is a copolymer of ethylene and 1-butene.

11. (Amended) The ethylene (co)polymer (A1) according to [any one of the claims 1 to 9,] claim 1 or 2, wherein the ethylene (co)polymer is a copolymer of ethylene and 1-hexene.

12. (Amended) The ethylene (co)polymer (A1) according to [any one of the claims 1 to 11,] claim 1 or 2, said ethylene (co)polymer (A1) is produced by either homopolymerization of ethylene or copolymerization of ethylene and α-olefin of 4 to 20 carbon atoms in the presence of an olefin polymerization catalyst comprising:

(a1) a transition metal compound of the following general formula (I)



(I)

[(where,] wherein M denotes a transition metal atom selected from the group IV and the group V of the periodic table;

m denotes 1 or 2;

R^1 denotes an aliphatic hydrocarbon group of 5 or more carbon atoms in total which may have [aromatic hydrocarbon group or] alicyclic hydrocarbon group substituents or alicyclic hydrocarbon group of 7 or more carbon atoms in total which may be aromatic hydrocarbon group or aliphatic hydrocarbon group substituents;

R^2 to R^5 may be the same or different to one another and each denotes a hydrogen atom, a hydrocarbon group, a hydrocarbon group-substituted silyl, an oxygen-containing group, a nitrogen-containing group, or a sulfur-containing group and two or more of [them] R^2 to R^5 may be bonded to one another to form a ring;

R^6 denotes a hydrocarbon group or a hydrocarbon-substituted silyl group;

in the case m is 2, at least one of the groups denoted as R^2 to R^6 belonging to any one of the ligands may be bonded to at least one of the groups denoted as R^2 to R^6 belonging to another ligand;

in the case m is 2, [respective R^1, respective R^2, respective R^3, respective R^4, respective R^5, and respective R^6] two of R^1, two of R^2, two of R^3, two of R^4, two of R^5, and two of R^6 may be the same or different to one another, and at least one of the groups R^2 to R^6 on ligand may be bonded to at least one of the groups R^2 to R^6 on another ligand;

n denotes a number satisfying the valence of M;

X denotes a hydrogen atom, a halogen atom, a hydrocarbon group, an oxygen-containing group, a sulfur-containing group, a nitrogen-containing group, a boron-containing group, an aluminum-containing group, a phosphorus-containing group, a halogen-containing group, a heterocyclic compound residue group, a silicon-containing group, a germanium-containing group, or a tin-containing group; in the case n is 2 or higher, [X's] each X may be the same or different to one another and [X's] each X may be bonded to one another to form a ring; and optionally

[and, if necessary,]

(b) at least one compound selected from the group consisting of:

(b-1) an organometallic compound,

(b-2) an organoaluminum oxy compound, and

(b-3) a compound capable of forming ion pairs by reaction on the transition metal compound.